

# Changing People's Behavior Toward the Environment

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NEW APPROACHES to environmental protection are needed that will take full advantage of the increased knowledge of human nature that the behavioral sciences have made available. Neither strict enforcement of environmental codes nor concerted consumer education has prevented people from subjecting their environment to continuous insults, even though these insults will be to their ultimate detriment. Yet these measures have been the main ones on which public health environmentalists have relied in their environmental protection efforts. The reason probably is that they have been trained to deal primarily with the symptoms or the results of human behavior, that is, with effects on the environment rather than with the determinants of human behavior that have brought about those effects.

Surveillance and code enforcement have been the foundation of environmentalists' practice, and laws and law enforcement will probably always have a place in environmental protection efforts. There are situations in which immediate compliance is imperative or in which educational approaches fail or would take too long to produce results. Nevertheless, environmentalists have been turning more toward an educational approach. Environmental corrections made as a result of legal action are too often only minimal and temporary and need constant vigilance to assure compliance. The emphasis therefore has changed and is increasingly being placed on educating people toward voluntary acceptance of behavioral constraints rather than relying on the threat of legal and police action.

## Knowledge Plus Motivation

The views of environmentalists about the kind of education needed to modify behavior are also changing. Some environmentalists regard an understanding of human nature as the key to the solution of our environmental problems and are testing ways of applying our enlarged

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knowledge about it to environmental protection efforts. They accept the mandate of Lynton K. Caldwell that man "must discover, invent, or develop mechanisms for rational control of himself in utilizing the power that he now commands. The alternative to this imperative appears to be self-destruction, for there is no evidence that 'nature' can be relied upon to save society from willful tendencies long removed from 'natural' control" (1). In line with Caldwell's mandate, these environmentalists are seeking to inform both individuals and the public at large about critical environmental issues and are trying to persuade them to exchange destructive habits and practices for constructive ones.

Knowledge alone, however, is not enough. In the long run, achieving and maintaining a safe and healthful environment depends not only on a knowledgeable public but on a highly motivated one, to whom such an environment represents a strong and abiding value that is compelling enough in itself to shape individual and community actions. Many public health environmentalists have stated their support for such an approach, but it has rarely been translated into programs and action. We environmentalists have lagged behind our colleagues in other public health disciplines in using behavioral science concepts as the basis for planned intervention into human behavior.

## Categorizing the Target Populations

Dr. Lawrence Kohlberg and his colleagues concluded that "attempting to reach individuals at different levels of moral maturity with the same message is a haphazard approach, and we could expect to reap meager benefits. If the goal is population control and the message is why, we first have to know to whom we are speaking, what kinds of reasoning they are able to integrate into their thinking, and how to adapt our arguments to their level. Although more complicated, evidence suggests that this approach is also more effective" (2).

We propose a behavioral matrix for identifying and categorizing people. The concept underlying most educational programs—that people will change their behavior merely because they have acquired new knowledge about, and a concern for, the environment—is simplistic. Knowledge and concern are only two of several conditions that must exist in order for behavioral change to take place. Following is a list of

conditions influencing behavioral change:

1. Awareness that the environmental issue in question is actually or potentially detrimental to the person's own health and welfare.
2. Enough concern with the hazardous condition to be motivated to do something about it.
3. Knowledge of what one can do about the issue.
4. Knowledge of how to carry out this action.
5. Ability to carry out the action.
6. Belief that one's action will have a substantive impact on the environmental condition.
7. Assurance that the gains from taking the action will outweigh any sacrifices required (that is, the perceived cost-effectiveness of changing one's behavior).

Using the first two conditions as a basis, we can divide people into three groups: those aware and concerned, those aware but unconcerned, and those who are simply unaware. Each of these groups requires a different educational approach.

*The unaware.* If the condition of awareness is not met, an educational effort to impart the requisite knowledge is indicated, whether it is directed to individuals and small groups (for example, to classrooms or various citizens organizations) or to the public at large through the mass media.

*The unconcerned.* When awareness is already present, but insufficient concern seems to exist, emotional appeals to create concern would be indicated. Possession of the facts alone may not be sufficient to stimulate the action that would seem to follow logically from these facts. For example, although the dangers of few practices have become as well known as those of smoking, there has been no substantial decrease in the prevalence of the smoking habit. Similarly, despite widespread awareness of the benefits of the use of seat belts in automobiles, only a small proportion of drivers and passengers take advantage of them. Thus, educational efforts that rely solely or predominantly on creating public knowledge about detrimental environmental conditions will not necessarily produce the behavior desired.

*Aware and concerned but passive.* The explanation of why people who are both aware and concerned still persist in behaving as if they were not may be found among the last five conditions listed in our behavioral matrix. Thus, people may not know what they themselves can do about an environmental condition or how they can go about controlling it. They may not be able, or may believe that they are not able, to do anything about it. They may be discouraged also by the inconvenience, expense, or other sacrifices entailed in doing something about it. Each of these hindrances suggests the need for intervention appropriate to the particular problem.

### **Fostering Desirable Behavior**

Too often we emphasize what people can do without in-

forming them how they can do it. Facilities for recycling materials are set up in many communities, but large numbers of people who are aware of the importance of participating in such efforts do not know of the existence, location, or scheduled hours of these facilities. Neither are they sufficiently informed about the kinds of materials that can be brought to them.

Millions of people depend on private wells for their water supply and on septic tanks for disposal of wastes. We do not know how many of them are aware of or are concerned with the possible health hazards. Yet those who are aware and who seek information about how they can protect themselves often find it difficult or impossible to obtain sound advice. They are exposed to conflicting claims from the producers of a variety of commercial products and do not know whom to believe or where to obtain reliable information.

Environmental health agencies, instead of disseminating such information aggressively and widely, have all too often made information available only to those who know where to obtain it and are willing to make the effort to do so. Educational efforts should be focused on seeing that people who are already aware of and concerned about environmental hazards have the knowledge, resources, and skills to protect themselves against these hazards.

In complex societies such as ours, control of the environment lies predominantly in large political, economic, or technological systems, in which the individual has little power. Consequently, many people feel impotent when it comes to effecting changes that go beyond their immediate environment. They see any actions that they might take as insignificant in relation to the magnitude of environmental problems. Thus, people who are concerned with air pollution may persist in contributing to it by burning leaves and trash. They tend to feel: "What difference does it really make what I do? I am just one of millions." Similarly, people may feel helpless when faced with powerful industries that are polluting the air or water.

A new sense of social responsibility needs to be instilled so that each person will regard even a minute contribution to violating the environment or restoring it as being morally and physically significant. How to instill such an attitude is unfortunately a question for which there is no readymade answer. The old adage that there is strength in numbers may hold promise. Organizations of concerned citizens can effectively deal with sectors of our society that are beyond the individual's reach. More important, perhaps such organizations may also imbue their members with a sense of the significance of their own individual actions.

Even when people know what to do about a condition and how to do it, the actions that they need to take may be difficult and necessitate the sacrifice of convenience, money, or other values. Many people persist in undesirable behavior in regard to the environment because of a lack of awareness or concern; others do so because they do not know of more desirable alter-

natives. Many more people, however, persist in such behavior because certain factors make the alternatives difficult or inaccessible. To this larger group, we may be able to point out ways of overcoming or circumventing the most common barriers to desirable behavior and, in some cases, may even be able to remove the barriers. For example, free or inexpensive collection and disposal of leaves in a community will probably do more to curtail leaf burning than mere educational efforts. Publicizing the fact that certain restaurants in a community maintain high standards of sanitation and conducting a broad educational program to induce people to patronize these restaurants may increase their business, bring them financial rewards, and convince other restaurant owners that the gains accruing from the maintenance of high standards are worth the costs incurred.

The bother and inconveniences of storing and periodically delivering recyclable materials to a collection point may be a major barrier to action even on the part of concerned persons. If, however, people could be furnished with separate containers for such materials and these were picked up and kept apart from other solid waste, the number of people cooperating in recycling would undoubtedly increase. The benefits to our environment might be worth the cost of such a project. Moreover, the expense might be partially recovered through commercial use of the resulting products.

### Conflicts in Values

Even strongly motivated people may be inhibited from actions if they have to sacrifice things they cherish. And many, if not most, of the actions advocated by environmentalists require sacrifices—some of considerable significance to the individual. Whenever such sacrifices are required, there is a conflict of values. A person who has long cherished a quality environment may find himself in a situation in which this value conflicts with some of his other values. A restaurant owner may recognize his obligation to safeguard his customers' health, but he may also value his own security, income, and comfort. If maintenance of the recommended sanitary conditions in his restaurant requires greater expenditures of his time and money, there may be a conflict of values. The owner may have to sacrifice one or the other—the maintenance of excellent sanitary conditions or the enjoyment of certain economic and personal benefits. At best, he must find some compromise. If the owner believes strongly enough in the value of an immaculate environment, he may willingly shoulder the necessary costs and inconvenience to achieve it. If, on the other hand, he values money and convenience more, he will scrimp on the money for sanitation, barely meet legal requirements, and may even cover up violations.

No matter which value predominates and is responsible for an action, the restaurant owner will experience a psychological conflict as he suppresses one or the other of his values. Moreover, the closer in strength the two

values are, the more intense will be the conflict. If he attaches a strong value to the protection of his customers' health but suppresses this value for the more mundane value of personal gain, his conscience will plague him. On the other hand, if he lives up to his social responsibility at the expense of personal sacrifices, he will have a sense of deprivation.

People find various ways, of course, of dealing with such conflicts. According to the psychological theory of cognitive dissonance espoused by Leon Festinger, people tend to resolve conflicts between what they do and what they believe they ought to do either by changing their behavior or their belief so that the two are more compatible (3). The restaurant owner who strongly believes in providing a sanitary eating establishment but decides instead to promote his personal benefits suffers "cognitive dissonance," that is, a conflict between a value strongly held and a contradicting action that has been taken. He can reduce this dissonance or inner conflict in only one way (if we assume he is unwilling to change his action), and that is by changing his belief as to the desirability of a clean establishment. The conflict and the process of changing such a belief are usually unconscious; the person is unaware of either. He succeeds in weakening his initial belief by rationalizing his behavior. The restaurant owner may, for instance, begin to claim and to believe with increasing fervor that sanitarians exaggerate the hazards to his customers of sanitary violations. Or he may think that after all, he must be more concerned with the economic security of his family than with the rather minor risks to which some of his customers will be exposed. These and similar mental gymnastics enable him to justify his choice between the two conflicting values, diminish his discomfort over violating one of them, and construct, so to speak, a new logical basis that fully supports his initially dubious behavioral choice.

This process of rationalization leads the restaurant owner not only to undesirable behavior, but also to a weakening or even to the destruction of an originally strongly held value. Since we can safely assume that similar conflicts occur with incalculable frequency in virtually the entire population, we need to seek ways of preventing such a conflict initially or of effecting a different outcome. We need to strengthen the value that people ascribe to a healthful environment so that this value will be given prime consideration over conflicting values. We must try to insure that desirable behavior can be achieved with greater ease and with less sacrifice so that the lure of the kinds of behavior that are detrimental to the environment is weakened.

### Relationship of Values to Behavior

No matter how strongly a value is held, a variety of factors will modify its behavioral manifestations. A man may be deeply devoted to honesty and integrity, yet violate these values under certain circumstances. He may lie on an income tax return or steal pencils or note

paper from his employer's office, rationalizing these actions by belittling their significance and viewing them as doing little harm to those affected. The suburbanite who burns leaves may consider his contribution to air pollution as so infinitesimal as to be negligible, because he does not consider the cumulative effects of his action when combined with those of thousands of other citizens. A person may not view his actions as violating any of his strongly held values, even when in reality they do, because he projects an even greater fault on others. Thus, a person may demand that others stop using pesticides but will ignore his own use of herbicides.

When one acts in accord with his values, he feels pride and self-satisfaction, especially when the act is difficult or requires sacrifices. Satisfaction with one particular action, however, often weakens a person's determination to take other actions related to the same values and leads to some of the inconsistencies we so often find in people's behavior. Consider the mother who feels so proud and satisfied with her actions to protect her children against colds and minor hazards that she fails to keep toxic substances out of their reach, even though she knows the risks involved. The man who has given up cigarettes, proclaiming his concern with their effects on his own and other people's health, may gleefully fill the air with pipe smoke.

The instillation in children or adults of the value of a sound and healthful environment will not alone assure that the behavior they exhibit will be of the sort that would seem to logically follow from acceptance of this value. Although a person's abstract values may provide a general guide to his behavior, they do not necessarily determine his every action.

### Our Three-Dimensional Task

Getting people to incorporate into their behavior the safe and healthful practices that will improve the quality of our physical world is a three-dimensional task. We first need to instill a strong and pervasive sense of the value of a sound and healthful environment. Although we may succeed to some extent in doing so in our adult population, as the impact of the work of Rachel Carson, Ralph Nader, and various ecology-minded citizens organizations has demonstrated, the emphasis should be on our children. We need to strengthen our efforts, quantitatively and qualitatively, to instill such values at an age when lasting ones are being formed.

Second, we must inculcate in people, and again especially in children, a sense of social responsibility and of their relationship to the welfare and health of other people. We need to stress less the unrestrained rights of people to the resources provided by our environment and stress more the obligation that people have to contribute to the equal rights of others to these resources. Such shared rights demand that each person weigh his own actions in terms of how they will affect others and consider how even relatively small and apparently insignificant acts add to the cumulative impact of similar acts by others. In other words, a person must assume

responsibility for his own behavior even when others are seemingly refusing to live up to their responsibilities.

The third dimension of our task encompasses those more immediate and more readily available steps that can be taken to influence people's behavior directly. People who do not yet know of the detrimental effects of certain man-caused environmental deficiencies on their health and welfare must be made aware of these effects. We should also try to get people emotionally involved in such environmental issues. Guidance needs to be given to people as to what they can do in their own situations to reduce environmental hazards—and how, when, and where. We should especially try to remove, or at least to reduce, the barriers and difficulties in taking such actions and try to get people to feel that relatively speaking they stand to gain despite the need for a little effort, expense, or inconvenience on their part.

### Tailoring Treatment to the Individual

Finally, we must forego the apparent ease and efficiency of using standardized approaches to induce individuals and the public at large to mold their actions to the demands of the environment. Because people differ, the approaches, appeals, and methods that are effective with some fail with others. Just as no physician would ever prescribe the same treatment for all his patients without a thorough diagnosis (even for those with the same general disease), so we must diagnose the problems of the particular population groups with which we deal. We need to learn, for example, whether the group is generally aware of the particular environmental issue and is concerned with it; the treatment that we apply should then differ accordingly. A relatively small investment of time and money in such diagnosis, preferably with the help of a behavioral scientist, may bring profound and lasting changes in the behavior of the group and have a beneficial impact on the environment.

### Conclusion

Our traditional efforts in environmental protection, which have relied on laws and law enforcement and on the simple dissemination of information, clearly have reached a plateau in effectiveness. The challenge before us now is to develop new behavioral techniques for improving the quality of the environment—the quality of life.

### References

1. Caldwell, L. K.: Health and homeostasis as social concepts: exploratory essay. *In* Diversity and stability in ecological systems. Brookhaven Symposia in Biology No. 22 (proceedings of a symposium held at Brookhaven National Laboratory, May 26-28, 1969). Brookhaven National Laboratory, Upton, N.Y., 1969, pp. 206-223.
2. Kohlberg, L., and Gilligan, C.: Moral stages in sex education. *In* Sexuality and human values, edited by M. S. Calderone. Associated Press, New York City, 1974.
3. Festinger, L.: A theory of cognitive dissonance. Stanford University Press, Stanford, Calif., 1957. Reissued 1962.